

**SRM UNIVERSITY, ANDHRA PRADESH**  
**SUMMER INTERNSHIP COURSE, June 2024**

**WEEKLY DIARY REPORT**  
**(STUDENT BATCH 2022-26)**

(To be submitted to Faculty Mentor over mail with CC to Industry mentor)

Name of Student: **Soumya Karuturi**

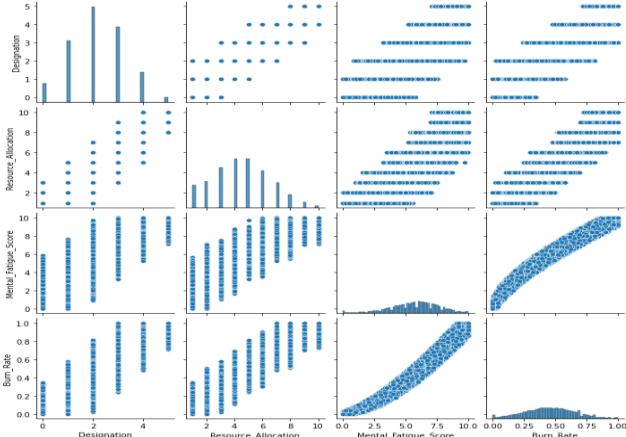
ID NO: **AP22110010175**

Company Name (For industry internship): **EDUNET Foundation**

Name of Faculty Mentor: **Ravi Kant Kumar**

Week 1 From __06/06/2024__ to __12/06/2024__		
S. No	Field	Answer
1	Project Title	EMPLOYEE BURNOUT PREDICTION
2	Project Description	The Employee Burnout Prediction project intends to utilize machine learning methods to detect employees who are likely to experience burnout. By examining diverse data points encompassing employee performance, workplace conditions, and individual factors, the project aims to develop a predictive model that enables organizations to take early action and reduce burnout risks. This proactive approach aims to improve employee well-being and boost overall productivity.
3	Outline of the Solution	The approach to predicting employee burnout includes gathering data from various sources such as employee surveys, HR files, work performance metrics, and health records. This data undergoes cleaning and transformation to identify significant predictors. A machine learning model is subsequently constructed and validated to forecast burnout risk, supplemented by real-time tracking and notification systems for prompt interventions. Ethical guidelines are strictly followed to safeguard employee privacy and data protection throughout the project.
4	Design of the Solution	The design of the Employee Burnout Prediction project involves aggregating data from diverse sources, including employee surveys, HR records, work performance metrics, and health data. This data is meticulously pre-processed and transformed to

		<p>extract significant features. A robust machine learning model is then constructed and validated to forecast burnout risks accurately. The solution integrates real-time monitoring and alert systems within the organization's HR infrastructure to enable timely interventions. Throughout the process, stringent ethical standards are upheld to ensure employee privacy and data security, promoting a proactive approach to managing and mitigating burnout.</p>
5	Hardware and Software Requirements to execute the project	<p>Hardware Requirements:</p> <ol style="list-style-type: none"> <li>1. Processor – Intel core processors or any AMD chips.</li> <li>2. RAM - 1GB</li> <li>3. Hard Disk – 40GB</li> <li>4. Operating System- Windows 7 and above</li> </ol> <p>Software Requirements:</p> <ol style="list-style-type: none"> <li>1. Jupyter notebook(anaconda 3) or Google collab.</li> <li>2. Python 3 or the latest version</li> </ol>
6	Environment setup Windows/Linux/Raspberry Pi/Arduino	<ol style="list-style-type: none"> <li>1. Windows/Linux: Use Python, libraries, and tools for comprehensive development and deployment.</li> <li>2. Raspberry Pi: Leverage Python and TensorFlow Lite for lightweight deployment.</li> <li>3. Arduino: Utilize C/C++ and TensorFlow Lite for embedded machine learning tasks.</li> </ol> <p>Setting up the Employee Burnout Prediction Project involves installing Python, and necessary libraries, selecting an appropriate IDE or environment, optionally setting up databases, and using tools like Git and Docker for version control and deployment. These steps ensure a functional setup across Windows, Linux, Raspberry Pi, and Arduino platforms for effective development and deployment of machine learning models.</p>
7	Concepts Used (Functions, header files, data types, and concepts (Loops, arrays, conditional statements, etc.). Explanation of the concepts). For Hardware projects also explain with respect to the code being developed	<p>Functions:</p> <p>Functions are reusable blocks of code that perform specific tasks, helping to organize code, reduce redundancy, and improve readability.</p>

		<p>Header Files:</p> <p>Header files, commonly used in C/C++, contain declarations of functions, macros, and data types. They allow for better code organization and reusability.</p> <p>Data Types:</p> <p>Data types specify the kind of data a variable can hold, such as integers, floats, strings, or custom types like structures and classes.</p> <p>Loops, arrays, and Conditional Statements:</p> <p>Loops are used to execute a block of code repeatedly. Arrays are collections of elements of the same type, allowing for efficient storage and access. Conditional statements allow the code to make decisions and execute different branches based on conditions.</p>
8	Testing & Validation (Boundary tests and boundaries of inputs. Possible inputs and corresponding outputs).	In the employee burnout prediction project, testing involves normal cases, boundary conditions, and out-of-range inputs. Normal cases include typical values for work hours, stress level, and work-life balance. (e.g., 0 and 80 hours), stress levels (e.g., 0 and 10 on a stress scale), and inputs like age or tenure. Possible inputs like 0 work hours or 10 stress level should correspond to outputs like "No burnout risk" and "High burnout risk," respectively.
9	Testing Material (Screenshots of working outputs. Images in case of hardware project)	 <p>The figure displays a 4x4 grid of plots illustrating the relationships between four variables: Designation, Resource_Allocation, Mental_Fatigue_Score, and Burn_Rate. The plots are arranged as follows:</p> <ul style="list-style-type: none"> <li><b>Row 1:</b> Designation vs. Resource_Allocation (bar chart), Designation vs. Mental_Fatigue_Score (scatter plot), Designation vs. Burn_Rate (scatter plot), and Designation vs. Burn_Rate (density plot).</li> <li><b>Row 2:</b> Resource_Allocation vs. Designation (bar chart), Resource_Allocation vs. Mental_Fatigue_Score (scatter plot), Resource_Allocation vs. Burn_Rate (scatter plot), and Resource_Allocation vs. Burn_Rate (density plot).</li> <li><b>Row 3:</b> Mental_Fatigue_Score vs. Designation (bar chart), Mental_Fatigue_Score vs. Resource_Allocation (scatter plot), Mental_Fatigue_Score vs. Burn_Rate (scatter plot), and Mental_Fatigue_Score vs. Burn_Rate (density plot).</li> <li><b>Row 4:</b> Burn_Rate vs. Designation (bar chart), Burn_Rate vs. Resource_Allocation (scatter plot), Burn_Rate vs. Mental_Fatigue_Score (scatter plot), and Burn_Rate vs. Burn_Rate (density plot).</li> </ul>

10	User Manual	
11	Technical Documentation	
12	References	
13	Daily Work Breakdown	
	Day 1	Technical Session
	Day 2	Internship Program Introduction
	Day 3	Skill builds Account Creation
	Day 4	Introduction To AIML
	Day 5	Exploring Python libraries
Week 2 From _13/06/2024__ to __19/06/2024__		
	Day 1	Technical Session
	Day 2	Supervised and unsupervised learning
	Day 3	Data Exploration and Preprocessing
	Day 4	Implementation of Dataset (adult from Kaggle)
	Day 5	Data Manipulation using Pandas Library
Week 3 From _20/06/2024__ to __26/06/2024__		
	Day 1	Technical Session
	Day 2	Learning plan course Completed in IBM Skill Build platform
	Day 3	Linear Regression
	Day 4	Implementation of linear Regression on Dataset
	Day 5	Started working on a Project (Employee Burnout Prediction).

Week 4 From <u>27/06/2024</u> to _____		
	Day 1	Implementing feature selection techniques
	Day 2	Fine-tuning machine learning models
	Day 3	Testing different evaluation metrics
	Day 4	Documenting technical approach
	Day 5	Reviewing initial results and planning the next steps
Week 5 From _____ to _____		
	Day 1	Enhancing data preprocessing techniques
	Day 2	Exploring advanced machine learning algorithms
	Day 3	Implementing ensemble methods
	Day 4	Conducting model optimization
	Day 5	Analyzing model performance and making adjustments
Week 6 From _____ to _____		
	Day 1	
	Day 2	
	Day 3	
	Day 4	
	Day 5	
Week 7 From _____ to _____		
	Day 1	Preparing final presentation materials

	Day 2	Practicing presentation
	Day 3	Finalizing technical documentation
	Day 4	Conducting project review
	Day 5	Handing in project outputs
Week 8 From _____ to _____		
	Day 1	Presenting project outcomes to relevant parties
	Day 2	Collecting feedback and addressing queries
	Day 3	Reflecting on internship experience
	Day 4	Wrapping up loose ends
	Day 5	Completing the final internship report and evaluation